AMENDMENTS TO THE SPECIFICATION

I. **Please replace the Title with the following new Title:**

Tachometer Device Having Rotation Speed Indicative Projection Light Source

II. **Please replace the entire Specification and Abstract with the amended Specification and Abstract as follows:**

–BACKGROUND OF THE INVENTION

1. Field of the invention

This invention relates to a tachometer used in a car, and more particularly, to a tachometer device with ~~the variation of the~~ a projection light source changing the color of the generated light according to the ~~rotation~~ rotational speed of the car engine, ~~especially refers to a tachometer with the variation of the projection light source according to the rotation speed which~~ wherein the projection light source ~~could change various~~ changes the color of the light when the ~~rotating~~ rotational speed of the car engine reaches ~~the setting~~ a predetermined value ~~by means of the program control of the microprocessor~~.

2. Description of the prior art

~~Among~~ In the auto racing, ~~which requires highly value the speed besides the factors that the racer car itself could fight against the wind, or the car body is designed to be streamline car body, one important highly valued key factor is the rotating speed of the engine; except for the acute feeling and the smart technology the auto racer himself owns, one can perform~~ the ~~shift switch~~ shifting at suitable engine ~~rotation~~ rotational ~~speed~~ speeds is ~~the major~~ an important factor ~~that this racer car could gain~~ for gaining maximum power as well as attaining sufficient racing speed. To determine the right moment to shift gear speeds, a racer has to read an instant engine rotational speed, which is quite a challenge while driving at high speed.

~~Thus, it is often seen that on racing, when the car is speeding up from the start point, it is often that the auto racer should switch his gear shift several times to speed up rapidly and has the lead in the racing; however, on rapidly switching his gear shift, the rotation speed varies rapidly as well, so it is a very important topic how to make the racers whose eyes are watching their front vision easily grasp the right now rotation speed.~~

~~So, the racers should be in fine training environment except for relying on their good driving skill. Thus the maximum purpose of this invention is to simulate the car speed on racing, the racing condition, the car situation or by using other auxiliary equipments to achieve the above mentioned effect so that the racer could grasp the~~

~~rotation speed of his racer car at all times on racing and immediately switch his shift on his optimum timing.~~

~~From this we know that there still are many insufficiencies for the above mentioned traditional object which is not a fine design and requires to be bettered.~~

~~The inventor of this invention thinks to innovate and create due to each insufficiency derivates from the above mentioned rotation tachometer and supplied for many years and finally he completes research the tachometer with the variation of the projection light source of this invention.~~

It would be highly desirable to provide racing cars with sufficient means to aid a driver to quickly and effortlessly ascertain the level of engine rotational speed.

SUMMARY OF THE INVENTION

It is therefore a ~~The~~ purpose of this invention ~~is~~ to provide a tachometer device for a car with ~~the variation of the~~ a projection light source which ~~could utilize the electric controlled loop to synchronize light mixing to drive the RGB illumination device set, the user could switch each color light source~~ switches between different colors of the generated light (such as red, green, blue, yellow, indigo-blue, purple, white) ~~through the switch device, and by the control of the micro processor program, the color of the light source could change one light source color~~ according to the ~~rotation~~ rotational speed of the car engine (such as, for example, 1000 RPM or 500 RPM), so that ~~when the user is~~

~~driving with high speed, he could recognize the right now rotation~~ the color of the generated light indicates to the car driver an instant rotational speed condition of the car engine ~~condition just through the light source with various color~~, thus sufficiently simplifying the rotational speed reading procedure.

Another purpose of this invention is to provide a tachometer device with ~~the variation of the~~ a projection light source, which has a presetting ~~one memory~~ mode, when ~~the~~ a user ~~is setting~~ records in the memory of the tachometer device ~~the corresponding~~ for a particular color of the light source corresponding rotational ~~of each rotation~~ speed~~, this~~. The device ~~will memorize~~ memorizes ~~all the default~~ the respective values of the speed corresponding to respective colors ~~values~~ so that when the tachometer device is being reset or being re-initiated, said corresponding color-speed correspondence need ~~should~~ not be reset again.

According to the present invention, a ~~The~~ tachometer device includes a microprocessor and a memory, and is provided with ~~the variation of the~~ a projection light source ~~of which it could achieve the above mentioned purpose of the invention is to add a light source device in the circuit device inside the meter body, said light source device comprises:~~ which includes:

~~A~~ a switch device, ~~which could output a switch signal or a set up signal to the electric control loop;~~

~~An~~ an electric-control loop, which receives a ~~is used to receive the~~ control signal ~~input by~~ from the microprocessor indicative of what color the light source has to generate ~~in the circuit device of the rotating tachometer, it.~~ It also ~~could be~~ is used to receive the switch signal from the switch device when the speed has reached a predetermined critical value indicative of switching the color of the generated light; and

~~A~~ an RGB illumination device set, which ~~are settled on the proper position inside the meter body respectively, and it~~ receives ~~the~~ a driving signal ~~input by or the set up signal in~~ from the electric-control loop~~;~~ to generate light of a color corresponding to an instant rotational speed of the car engine.

~~By means of utilizing the electric control loop to synchronize light mixing to drive the RGB illumination device, and by means of the program control of the microprocessor, when the rotation speed reaches the default value, it could change the projection light source with various color according to the setting.~~

These features and advantages of the present invention will be fully understood and appreciated from the following detailed description of the accompanying Drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

~~The drawings disclose an illustrative embodiment of the present invention which serves to exemplify the various advantages and objects hereof, and are as follows:~~

Fig. 1 is ~~the~~ a circuit block diagram of the ~~speed with the variation of the projection light source~~ tachometer device of the present ~~this~~ invention; and

Fig. 2 is ~~the solid figure~~ a perspective view of ~~said speed with the variation of the projection light source~~ the tachometer device of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

~~Said~~ A tachometer ~~could be~~ device of the present invention allows the user to set-up a ~~the~~ critical ~~standard rotating~~ rotational speed value of a car engine to determine ~~provide~~ an optimum shift-switch time. In addition, the tachometer device records ~~as well as record~~ the condition of the ~~fastest rotation~~ highest rotational speed ~~on~~ during car racing. ~~which at least~~ The device of the present invention comprises: a meter body which covers all the components of the tachometer device; a microprocessor which is used to ~~calculate the signal of each item of input and output to achieve the function of controlling each item of variables~~ process input signals and to control the operation of the tachometer device; a functional selection operation device which ~~function is to set up the parameter outside and to record each reference numbers on the~~ is used by a user to set up correspondence between the speed values and colors of generated light, which are recorded in a memory device (through the functional selection operation device the user also can set up critical speed values at which gear shift is to be switched) ~~which is used to record the default parameter or the input signal of the rotation speed of the engine to provide optimum reference data~~; and a cylinder changeover switch which could be used to select the cylinder type.

Referring to Fig. ~~Please refer to fig.~~ 1, ~~which is the circuit block diagram of the tachometer with the variation of the projection light source of this invention, from the~~

~~figure we know that this invention is to add one~~ a light source device 2 ~~on~~ is coupled to the original tachometer circuit 1, ~~said~~ wherein the light source device 2 comprises:

~~A~~ a switch device 21, which is used to output a switch signal (or a set-up ~~setting~~ signal) onto ~~the~~ an electric-control loop 22 once a critical speed value is reached indicative of necessity to change the color of the generated light (the change of the color indicates to the car driver an optimal time for gear shift switching);

~~An~~ the electric-control loop 22, which is used to receive the control signal ~~input by~~ from the micro-processor 11 ~~in the speed circuit device~~, and which is also used to receive the switch signal (or the set-up signal) from ~~of~~ the switch device 21 ~~or the set up signal, and it also has the function of integrating the memory signal, and it.~~ The electric-control loop 22 processes the control signal from the micro-processor 11 which "indicates" to the electric-control loop 22 what color the instant rotational engine speed corresponds to. Also, the loop 22 is controlled by the switch device 21 to switch the color once a respective critical rotational speed value has been reached. Thus, in response to both the switch signal output from the switch device 21, and to control signal from the micro-processor 11, the electric-control loop 12 outputs the signal to the RGB illumination device set 23~~;~~.

~~A~~ The RGB illumination device set 23, ~~which~~ is positioned ~~settled on the proper position~~ inside the meter body~~, and it~~ It receives the driving signal ~~input by~~ from the electric-control loop 22~~; and by means of the light mixing character of~~ prompting the

RGB illumination device 23 to change the color of the generated light to a color corresponding to an instant engine rotational speed, wherein R=red; G=green; B=blue; R+G=yellow; G+B=indigo blue; R+B=purple; R+G+B=white, ~~so that the color could be changed;~~

~~It utilizes the~~ The electric-control loop 22 ~~to drive~~ drives the RGB illumination device set 23 by means of synchronized light-mixing technique ~~with the way of synchronize light-mixing, which records the~~ when a specific speed segment is recorded ~~as well as the color light source on~~ in the memory 12 in correspondence with a respective color. ~~with the default way so that the~~ The rotating tachometer has ~~the function of various rotation~~ a plurality of speed ~~segment~~ segments, and therefore can display ~~with~~ light of various ~~color light source; whereas the~~ colors. The ~~user also could~~ device can switch the color light source between the colors such as red, green, blue, yellow, indigo-blue, purple, white by means of the switch device 21, ~~and by~~ Under the control of the microprocessor 11 program, the color of the light generated by the light source 2 can be set up ~~could be setting up~~ according to the rotating speed segment (such as, for example, one segment ~~per~~ for 1000 RPM or one segment ~~per~~ for 500 RPM), ~~on practice~~ In operation, the user first sets the speed segment and the corresponding color, ~~light source and~~ as well as the ~~shift switch rotating~~ rotational speed value (critical value) ~~of~~ corresponding to the optimum time for shift switch ~~value is setting~~, for example, at 500 RPM, ~~then~~. Then, during the car race when the ~~rotating~~ rotational speed is between 0-1000 RPM, ~~it is one color~~ the light source ~~whereas~~ generates light of one color, while

when the speed is between 1000-2000 RPM, ~~it transfers into~~ the light source 2 switches to another color ~~light source. In accordance with this it could be imaged~~ The color does not change until the ~~rotating~~ speed reaches the ~~shift~~ ~~switch rotating~~ critical speed value which is 500 RPM. Thus the user can easily ~~could~~ recognize ~~the right now rotating~~ instant speed condition and ~~seize~~ perform the ~~optimum~~ shift ~~switch~~ switching ~~timing only through various~~ when the color of the light source changes ~~on high speed driving~~.

Referring to Fig. ~~Please refer to fig.~~ 2, which is the ~~solid figure~~ perspective view of the tachometer device with the ~~variation of the~~ projection light source of this invention. ~~From this we know, there settles a functional~~ , the device includes a selection operation panel 31 on ~~said~~ the tachometer 3, ~~there settles~~ ~~the~~ a display lamp as well as a plurality of press ~~button~~ buttons 311 ~~for control~~ on ~~said functional~~ the selection operation panel 31. ~~of which said~~ The press ~~button~~ buttons 311 ~~could~~ can be ~~expanded for usage~~ used depending on the functional requirement. ~~, the~~ The user ~~could~~ can directly utilize the press button 311 to set-up the ~~rotating~~ rotational speed region ~~as well as~~ segment and the corresponding color as well as critical rotational speed value.

The tachometer device with ~~the variation of the~~ projection light source according to ~~the rotation speed provided by~~ this invention has the following advantages in comparison with other traditional technologies:

1. The tachometer device with ~~the variation of~~ the projection light source variable according to the ~~rotation~~ rotational speed ~~of this invention~~ utilizes the electric-control loop to drive the RGB illumination device set ~~with the synchronize light mixing way,~~ by means of which the ~~user could~~ device can switch the color of the light generated by the

light source ~~such as~~ between red, green, blue, yellow, indigo-blue, purple, white ~~through the switch device~~; ~~besides, through~~ under the control of the microprocessor program in correspondence to the rotational speed of the car engine.~~, the~~ The color of the light ~~source could~~ can be changed ~~into one light source~~ to another color according to the ~~rotation~~ rotational speed so that the user ~~could~~ can easily recognize the ~~right now~~ instant speed condition ~~through various color light source on~~ during the high-speed driving.

2. The tachometer device with ~~the variation of~~ the projection light source variable according to the rotational ~~rotation~~ speed ~~of this invention~~ has a memorizing ~~one memory~~ mode of operation, when the user sets up the color of the light ~~source~~ in ~~corresponding~~ correspondence with ~~each~~ a respective segment of the rotational ~~rotation~~ speed.~~, the~~ The device will memorize all the default values, so that when the tachometer is to be reset or re-initiated, said corresponding color is not required to be ~~re-selected~~ reset.

3. The tachometer ~~with the variation of the projection light source according to the rotation speed~~ of this invention ~~could provide~~ provides for the user the opportunity to select colors ~~setting up the color light source~~ in correspondence with each segment of the rotation speed according to ~~his favorite or habit~~ the user's preference ~~except for the corresponding default value pre-set in the memory~~ in order to let the user to feel ~~convenient on easily~~ comfortable in recognizing the ~~right now~~ instant speed as well as ~~he would perform~~ for performing gear shifting at the best time.

Many changes and modifications in the above-mentioned embodiment of this invention can, of course, be carried out without departing from the scope thereof.

Accordingly, to promote the progress in science and the useful arts, the invention is disclosed and is intended to be limited only by the scope of the appended claims.

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ABSTRACT OF THE DISCLOSURE

A tachometer device with ~~the variation of the~~ a projection light source generating light of a color corresponding to an instant rotational speed of the car engine to indicate to a racer the best ~~which could set up the critical standard speed value to provide optimum shift-shifting~~ time for gear shift switching by changing the color of the generated light. ~~and record the fastest speed condition happened on racing at least comprising: the meter body,~~ The device includes a the micro-processor, ~~the functional selection operation device, the~~ a memory device where a color corresponding to a respective speed segment, as well as speed value critical for shift switch are recorded, and a ~~as well as the cylinder changeover switch; the character of this invention is to add one~~ light source device including ~~on the circuit device inside the meter body, said light source device is comprised of~~ a switch device, an electric-control loop and a RGB illumination device set. The light source device is controlled by~~; it utilizes the way of synchronize light mixing with the electric control loop to drive the RGB illumination device set, and by means of the program control of~~ the microprocessor to change the color of the generated light~~,~~ when the ~~rotating~~ speed reaches the ~~setting~~ critical value~~, the projection light source with various color could be changed according to the setting~~ pre-set by a user.--